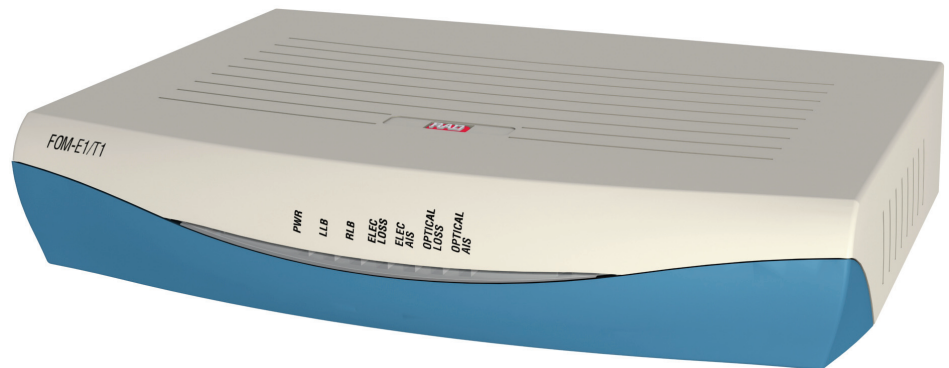


FOM-E1/T1

E1/T1 Fiber Optic Modem

Converts E1/T1 electrical signals into optical signals to extend the range of E1/T1 service up to 144 km (89.4 miles)



- Fiber optic modem, extends the range of E1/T1 services over fiber optic links of up to 144 km (89.4 miles)
- Extended range with optional laser diode
- Transparent to E1/T1 framing
- Operates opposite RAD's DXC cross-connect systems, FCD access units, and Megaplex access multiplexers
- Conforms to all relevant ITU series standards

The FOM-E1/T1 fiber optic modem converts E1/T1 electrical signals into optical signals for transmission over fiber optic cables to extend the E1/T1 service range of up to 144 km (89.4 miles).

FOM-E1/T1 supports various optical interfaces:

- 850 nm for multimode fiber
- 1310 nm for multimode fiber
- 1310 nm for single-mode fiber
- 1550 nm for extended range over single-mode fiber.



data communications

Innovative Access Solutions

FOM-E1/T1

E1/T1 Fiber Optic Modem

FOM-E1/T1 operation complies with ITU G.703 and G.955 standards.

Front panel LEDs indicate system faults in the electrical and fiber optic circuits.

An alarm relay port transmits the following alarm conditions:

The modem supports activation of local and remote loopbacks.

- Major alarm – Low level of E1/T1 electrical input or high bit error rate at the fiber optic interface
- Minor alarm – AIS received at electrical or fiber optic interface.

FOM-E1/T1 is also available as a plug-in card for RAD's 19-inch modem rack, ASM-MN-214.

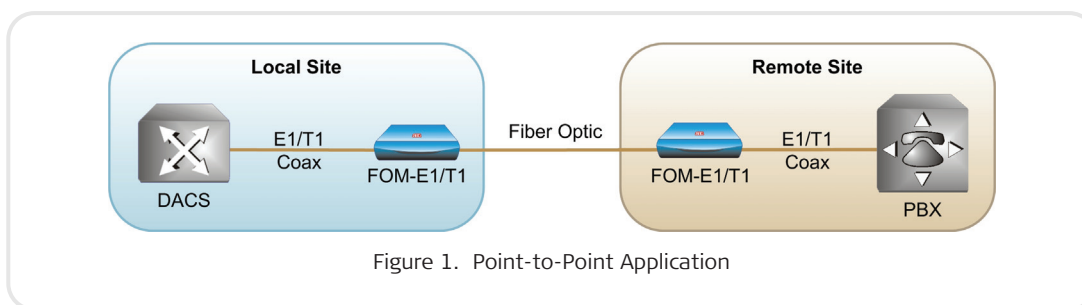


Figure 1. Point-to-Point Application

Table 1. FOM-E1/T1 Fiber Optic Interface Characteristics

Option	Wavelength	Fiber Type	Transmitter Type	Typical Power	Receiver Sensitivity	Connector	Typical Max. Range	
	[nm]						[μm]	[km]
85	850	62.5/125 multimode	VCSEL/LED	-18 (FOM-E1/T1/R)	-35 (FOM-E1/T1/R)	ST, SC, FC	4.8	3.0
			VCSEL	-7 (FOM-E1/T1)	-34 (FOM-E1/T1)		6.7	4.2
13MM	1310*	62.5/125 multimode	LED	-18	-31	ST, SC	9.3	5.7
13L	1310	9/125 single mode	Laser	-12	-40	ST, SC, FC	50.0	31.0
13LH	1310*	9/125 single mode	Laser (long haul)	-2	-40	ST, SC, FC	70.0	43.4
15L	1550	9/125 single mode	Laser	-12	-38	ST, SC, FC	92.0	57.0
15LH	1550*	9/125 single mode	Laser (long haul)	-1	-40	ST, SC, FC	144.0	89.4
SF1	1310/1550*	9/125 single mode	Laser (WDM), SF1	-12	-34	SC	38.0	23.6
SF2	1550/1310*	9/125 single mode	Laser (WDM), SF2	-12	-34	SC	38.0	23.6
SF3	1310*	9/125 single mode	Laser (single fiber), SF3	-12	-27	SC/APC	20.0	12.4

* Available in standalone version only.

Specifications

E1/T1 ELECTRICAL INTERFACE

Transmission Rate

E1: 2.048 Mbps

T1: 1.544 Mbps

Zero Suppression

E1: HDB3

T1: B8ZS, AMI

Impedance

E1: 75Ω, unbalanced or
120Ω, balanced

T1: 100Ω, balanced

Connectors

RJ-45, balanced

BNC, unbalanced

FIBER OPTIC INTERFACE

See *Table 1*

GENERAL

Diagnostics

Local and remote loopbacks activated via back panel DIP switch

Alarm Relay Port

Dry contact via 9-pin, D-type, female connector

Indicators

PWR (green) – power status

LLB (yellow) – local loopback status

RLB (yellow) – remote loopback status

OPTICAL AIS (yellow) – "all 1s" string received at the fiber optic interface

OPTICAL LOSS (red) – BER is over 10⁻⁶

ELEC LOSS (red) – electrical interface input is below G.703 level

ELEC LOSS (red) – electrical interface input is below G.703 level

ELEC AIS (yellow) – "all 1s" string received at the electrical interface

Power (standalone only)

Wide range: 100–240 VAC or
–40 to –60 VDC

DC only: 24 VDC

Power Consumption

AC: 8 VA max

DC: 4W max

Physical

Height: 4.37 cm (1.7 in)

Width: 24.0 cm (9.4 in)

Depth: 17.0 cm (6.7 in)

Weight: 0.5 kg (1.1 lb)

Environment

Temperature: 0°–50°C (32°–122°F)

Humidity: Up to 90%, non-condensing

Table 2. Fiber Optic Modem Comparison Chart

Feature	FOM-E1/T1	FOMi-E1/T1	FOM-20	FOM-40	FOMi-40	FOM-E3/T3	FOMi-E3/T3	FOM-E3/T3 ETH
Max. Data Rate [kbps]	E1/T1	E1/T1	19.2–256	56–2048	56–2048	E3/T3	E3/T3	E3/T3
Interfaces	G.703	G.703	Serial, Ethernet	Serial, Ethernet	Serial, Ethernet, E1/T1	G.703	G.703, HSSI	10/100BaseT VLAN Bridge
Laser Diode Option	✓	✓	✓	✓	✓	✓	✓	✓
SNMP Management		✓			✓		✓	
Card Version for Rack	ASM-MN-214	LRS	ASM-MN-214	ASM-MN-214	LRS		LRS	

FOM-E1/T1

E1/T1 Fiber Optic Modem

Ordering

FOM-E1/T1/*/#/ε

E1/T1 fiber optic modem

FOM-E1/T1/R/#/ε

E1/T1 fiber optic modem, card version for
ASM-MN-214 modem rack

Legend

- * Power supply type
- AC** 100 to 240 VAC
 - 48V** -40 to -60 VDC
 - 24V** 24 VDC
- # Fiber optic connector type
- ST** ST connector
 - SC** SC connector
 - FC** FC connector

- ε Optical wavelength, fiber and transmitter type (see *Table 1*)
- 85** 850 nm, multimode, VCSEL
 - 13MM** 1310 nm, multimode, LED
 - 13L** 1310 nm, single mode, laser diode
 - 13LH** 1310 nm, single mode, laser diode, long haul
 - 15L** 1550 nm, single mode, laser diode
 - 15LH** 1550 nm, single mode, laser diode, long haul
 - SF1** WDM single fiber, 1310 nm Tx
 - SF2** WDM single fiber, 1550 nm Tx
 - SF3** single fiber, 1310 nm Tx/Rx

Note: When ordering SFx options, do not specify the fiber optic connector type #.

OPTIONAL ACCESSORY

RM-33-2

Hardware for mounting one or two FOM E1/T1 units in a 19-inch rack

International Headquarters
24 Raoul Wallenberg Street
Tel Aviv 69719, Israel
Tel. 972-3-6458181
Fax 972-3-6498250, 6474436
E-mail market@rad.com

North America Headquarters
900 Corporate Drive
Mahwah, NJ 07430, USA
Tel. 201-5291100
Toll free 1-800-4447234
Fax 201-5295777
E-mail market@radusa.com

www.rad.com



data communications
Innovative Access Solutions